

REMARKS

The Final Office Action mailed from the Patent Office on July 19, 2006, has been reviewed and the Examiner's comments carefully considered. Prior to this paper, claims 1-46 and 48-51 were pending, with claims 9-11, 21-32, 34, 36, 38 and 41-46 being withdrawn. By this paper, Applicants cancel claims 1-12, 32, 36, 37 and 48-50. Therefore, claims 13-31, 33-35, 38-46 and 51 are now pending.

Applicants respectfully submit that the present application is in condition for allowance for at least the reasons that follow.

Rejections Under 35 U.S.C. § 112, First Paragraph

Claims 48-49 stand rejected under 35 U.S.C. §112, first paragraph, "as containing subject matter that was not described in the specification in such a way as to reasonably convey . . . at the time the application was filed . . . possession of the claimed invention." Specifically, the Office Action states that the "specification does not provide support for the limitation of a weight of "at least 1000" since 'at least' encompasses any value greater than 1000 and any value greater than 1000 is not supported by the specification."

Applicants have cancelled claims 48 and 49, without prejudice or disclaimer, in order to advance prosecution. Applicants submit that the rejection of these claims under 35 U.S.C. §112, first paragraph, is now moot.

Claim Rejections Under 35 U.S.C. § 103(a)

In the Office Action, claims 1-8, 12-20, 33, 35, 37, 39, 40, and 48-51 stand rejected under 35 U.S.C. §103 as being obvious in view of EP 0329863 when combined with EP 0628146 and Krupnik et al. (U.S. Patent No. 6,298,538), while claims 35 and 37 stand rejected under the same statute in view of the combination of EP 0329863 with EP 0628146, with Krupnik, and with De Bruyne (U.S. Patent No. 5,088,919).

In response, in order to advance prosecution, and without prejudice or disclaimer, Applicants have cancelled claims 1-9, 12, 36, 37, and 48-50, and respectfully submit that the remaining claims are allowable for at least the following reasons.

Applicants rely on MPEP § 2143, which states that:

[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

It is respectfully submitted that the Office Action has not met any of the first, second and third criteria of MPEP § 2143.

The References Do Not Suggest All Claim Recitations

The Office Action recognizes that independent claim 13 recites that the membrane is a *burner membrane*. Claim 13 further recites, in the last line, that at least one layer of “the *burner membrane*” must **not** include a sintered body. This recitation is not met by the membrane resulting from the combinations proffered in the Office Action, as will now be detailed.

Additional structure is imparted by the phrase “burner membrane”: The Office Action asserts that “no additional structure is imparted to the claim by the recitation that the web is a burner membrane.” Applicants disagree.

First, Applicants note that claim 51 recites:

Burner membrane according to Claim 13, wherein the burner membrane *is adapted to be a burner membrane for a surface burner*.

(Emphasis Added.) Applicants point to MPEP § 2173.05(g), which state that a “functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art” and that “the Court held that limitations such as ‘members *adapted to* be positioned’ and ‘portions . . . being resiliently dilatable whereby said housing may be slidably positioned’ serve to precisely define present structural attributes of interrelated component parts of the claimed assembly. *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976).” (Emphasis added.) **Later boards have cited *Venezia*.** Thus, the burner membrane recitations must be considered with respect to at least claim 51.

Second, regarding the base claim, the assertion in the Office Action that the language “burner membrane” does not impart an additional structural recitation is tantamount to saying that no additional structure is imparted by the recitation of a “car engine block” in a claim reciting a car engine block, where the engine block is made of an alloy comprising 5% nickel including smooth bore engine cylinders, etc. The skilled artisan would recognize that to infringe such a claim, the alloy must be forged in the form of a car engine block, and thus patentability must be evaluated from the standpoint of utilizing the alloy in a car engine block, and not just evaluating the alloy by itself.

Moreover, the allegation in the Office Action that the phrase “burner membrane” does not impart additional structural necessarily means that any article of manufacture meeting the other recitations of claim 13 not relating to the heat resistant properties¹ could be used as a burner membrane. This is patently incorrect. Not all stainless steel fibers configured as claimed in claim 13 may be used as a burner membrane. ***In fact, normal stainless steel fibers are not heat resistant steel fibers.*** Therefore, not all articles of manufacture meeting the other elements of claim 13 would be structurally capable of being a burner membrane. Thus, the recitation of a “burner membrane” in claim 13 imparts additional structure to the claim. (That is, the ordinary artisan disregarding the recitations relating to heat resistance /

¹ An article of manufacture that admittedly does not yet exist, as evinced by the fact that claim 13 is rejected under section 103 in view of three separate references, as opposed to section 102.

burner membrane (just as has been done in the Office Action) could manufacture a membrane meeting the other recitations of claim 13 that would fail when used as a burner membrane.)

It appears that the Office Action is attempting to rely on common knowledge in the art, as is discussed and permitted in MPEP § 2144.03, to support its allegation that the phrase “burner membrane” does not impart additional structure to the claim, as the Office Action provides no rationale for this allegation. *(If common knowledge in the art is not being used, Applicants submit that the Office Action has not properly examined claim 13, as the PTO cannot unilaterally dismiss recitations in a claim without some reason supporting its position.)* However, Applicants note that § 2144.03 allows an applicant “to traverse such an assertion,” and that when an applicant does so, “the examiner should cite a reference in support of his or her position.” (MPEP § 2144.03, second paragraph.) Absent a citation by the PTO of a reference that can be evaluated for all its teachings, Applicants hereby traverse the assertion that it would have been common knowledge in the art that the recitation of a “burner membrane” would not impart additional structural attributes to the other recitations of claim 13 that would be distinguished by the Ordinary Artisan. **Applicants thus request, relying on § 2144.03, that the PTO cite a reference and exactly identify where such a reference teaches that a “burner membrane” does not connote additional structure to a fiber web, else allow the claims.**

Table 1 of EP '863 does not teach sintered burner membranes, it teaches only sintered filters: EP '863 teaches that fiber webs according to its teachings must be sintered when utilized as a burner membrane. The Office Action agrees that the membranes of Table 3, which are burner membranes, must be sintered. However, the Office Action asserts that because Table 1 teaches products according to EP '863 that are non-sintered, the products of Table 1 may fall within the recitations of claim 13. The Office Action dismisses Applicants previous arguments regarding the deficiencies of the products according to Table 1 of EP '863, asserting that “it is not clear where on page 5 the EP '863 references teachings that the materials in Table 1 are filters, not burner membranes.”

Applicants apologize for not previously specifically pointing out that Table 1 is introduced in EP '863 as follows:

“Table 1 summarizes the results of an isostatic pressure test applied on non woven metal webs Bekipor® 3A12 adapted for the use in filters.”

(Page 5, lines 11-14, emphasis added.) Indeed, the term “Bekipor” is the trademark that Bekaert, the assignee of this application, utilizes for porous material used in filters, as evinced by the web page printouts in Appendix A of this paper. Moreover, lines 2-6 of page 5 of EP '863, immediately before discussing “Test 1” and “Table 1,” discuss the

“dirt holding capacity F . . . which can be added to the filter element before the pressure drop at constant flow becomes unacceptably high.”

Further, the first recitation in Table 1 is the words “Isostatic pressure test in an oil medium.” Pressure tests are conducted with regard to a liquid, which is to be expected in a scenario where a web is used as a filter to filter oil, so as to evaluate the acceptability of the filter. Also, Table 1 recites pore sizes in micrometers. These pore sizes are relevant for filters, not for burners, and the skilled artisan would have recognized such. Accordingly, EP '863 teaches that the products according to Table 1 are filters, not burner membranes. Table 1 therefore does not just refer to “non-woven webs” in general, as is asserted in the Office Action. Thus, there is no teaching of a *non-sintered burner membrane* in EP '863, only a *non-sintered filter*.

Indeed, the very first sentence of EP '863 is that the “invention relates to a method of compacting a non woven *sintered* metal web.” (Emphasis added.) EP '863 is entirely directed towards sintered filters – that is the entire context of the reference, and every claim is directed to such a sintered filter. The mere fact that EP '863 mentions non-sintered filters in one place - Table 1 as Examples 5 and 6- does not mean that the teachings of EP '863 are directed towards non-sintered filters. These examples are merely for comparative purposes –

to show how the sintered filters of EP '863 are superior to other filters. The context of EP '863 is directed towards sintered filters, and these comparative examples do not change this.

Needed fiber web compressed in a subsequent step: The Office Action disregards the recitations requiring the compression to achieve the recited porosities to be performed in a subsequent step, asserting that the “burden is on Applicant to show that any process differences result in an unobvious difference between the claimed product and the prior art product.” This is correct to a point, but this is not grounds for the PTO to disregard evidence, as previously detailed, that modifying the prior art as proposed in the Office Action would not result in the claimed invention.

Specifically, the Office Action recognizes that EP '863 does not teach needling.² The Office Action also asserts that EP '146 teaches “a compressed web of stainless steel fibers. The web having a porosity of about 78-88 percent,” and in a prior Office Action, has acknowledged that EP '146 also does not teach needling. (Emphasis added.) The Office Action proposes to modify these products by needling these products according to Krupnik. Needling will change the porosities taught by these references, and the Office Action has not explained why the recited porosities will be maintained after needling so as to continue (*arguendo*) to meet the porosity recitations of the claims. That is, needling will skew the porosity away from the ranges taught in EP '863 and/or EP '416, and thus away from the claimed ranges. (This is even more so in the case of claims 2 and 14, which recite a narrower porosity range.)

The Office Action seems to propose the concept that introducing a manufacturing step into the manufacturing process used to obtain the products taught by the cited EP references would not change the properties of the products (*e.g.*, porosity). This cannot be. This is analogous to taking a reference that teaches an alloy with a yield strength of 100,000 pounds per square inch, but does not teach heat treatment of that alloy, and saying that during heat treatment of the alloy (a process that directly affects the yield strength of the alloy) during the

² Again, as detailed above, the samples in “Table 1” of EP '863 are not for a burner membrane.

manufacturing process of the alloy, the yield strength will still be the same as originally taught. Along the same lines, the Office Action is adding the step of needling in the manufacturing process of the products taught in the EP references, an additional step that affects porosity, but is asserting that the porosity will not change. This cannot be the case, and the skilled artisan would have recognized such.

Also, the Office Action admits that Krupnik “teaches that the needling is the last step in the formation of the web.” Krupnik thus teaches away from the invention of claim 13, in which needling is performed before compression.

Applicants submit that the skilled artisan would be able to inspect a web product and determine whether the web was needled before compression to obtain a recited porosity, or whether the web was needled after compression to obtain a recited porosity. This is analogous to the metallurgist inspecting a steel car body part and determining that the body part was stamped after it was extruded from a die. The skilled artisan can tell much about a products manufacturing history based on inspection of the end product, and the Office Action has not asserted anything to the contrary.

* * * * *

Claim 18: The Office Action asserts that a web having a weight of about 1000 grams per square meter would have about the same properties as a web having a weight of about 950 grams per meter. First, EP '863 is only teaching weights in the 900 grams per square range for sintered webs (see Table 1), and teaches that the weights are below 900 for non-sintered webs. Second, it appears that the Office Action again relies on common knowledge in the art, as is discussed and permitted in MPEP § 2144.03, to satisfy the first requirement of MPEP § 2143, and again, Applicants note that § 2144.03 allows an applicant “to traverse such an assertion,” and that when an applicant does so, “the examiner should cite a reference in support of his or her position.” (MPEP § 2144.03, second paragraph.) Absent a citation by the PTO of a reference that can be evaluated for all its teachings, Applicants hereby traverse the assertion that it would have been common knowledge in the art that a burner membrane having a weight of about 950 grams per centimeter would have about the

same properties as a web having a weight of 1000 grams per centimeter, in view of the recited porosities. **Applicants thus request, relying on § 2144.03 that the PTO cite a reference and exactly identify where such a reference teaches the alleged similar properties, else allow the claims.**

* * * * *

Claim 40: Claim 40 recites a burner component for a *gas burner*, comprising a *surface burner* comprising the burner membrane as claimed in claim 13. The Office Action asserts that “since EP ’863 teaches a burner membrane, the limitations of” claim 40 are met. First, as detailed above, Applicants have demonstrated that EP ’863 does not teach a non-sintered burner membrane. Second, even if the fact that EP ’863 only teaches a non-sintered filter are ignored, Table 1 specifically teaches that the membrane is used in an *oil flow*, not in a *gas flow*. Thus, claim 40 is allowable even if the other teachings of EP ’863 are ignored.

* * * * *

In sum, the proffered combination fails to meet the third requirement of MPEP § 2143 for at least these reasons, and thus claim 13 is allowable, along with the claims that depend therefrom. This is also the case with claims 35 and 37, at least because De Bruyne does not remedy the above identified deficiencies with EP ’863, EP ’146 and Krupnik.

Lack of Suggestion to Modify the Reference

MPEP § 2144.05(III), entitled Rebuttal Of *Prima Facie* Case Of Obviousness, states that a “*prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention.” (MPEP § 2144.05(III), second paragraph, emphasis added, citations omitted.) As detailed above, EP ’863 does not teach a *burner membrane* having a portion that is not sintered, and by repeatedly directing the reader to utilize a web that is sintered for a burner membrane, EP ’863 teaches away from the present invention.

The Office Action attempts to counter this fact by asserting that EP '863 teaches both sintered and non-sintered webs. EP '863 does not teach that both may be used for a burner membrane, only for a filter. Regarding the assertion that the phrase "burner membrane" is a statement of intended use, Applicants again point out that a burner membrane is distinct from a membrane that cannot be used with a burner, and that there are articles of manufacture that could meet the recitations of claim 13 not dealing with these heat tolerant properties, and not be used as a burner membrane. Moreover, claim 51 specifically recites language that requires the PTO to consider the recitations relating to a burner as structural elements of the claim.

Krupnik also teaches away from the present invention. As the Office Action recognized, Krupnik teaches needling as the last step in the manufacturing process. EP '863 specifically teaches that little variance in permeability is a requirement for a metal fiber medium when used as a burner membrane. The skilled artisan would have known that needling operations may create localized areas of increased permeability as a result of the insertion of the needles through the web, thus creating a variance in permeability. While it is true that subsequent compression may be performed after the needling step to eliminate this variance (*yet another reason why the sequence of needling / compression steps imparts structural features onto the claims, contrary to the assertions in the Office Action*), because Krupnik teaches that needling is the last action to be performed, Krupnik teaches away from a process that would result in a useful burner membrane, because needling as the last action would impart variances that the skilled artisan would recognize as being detrimental for use in a burner membrane.

* * * * *

Krupnik reference teaches away from incorporating its teachings into a burner membrane by teaching that it is important that the fibers retain the oil on their outer surfaces.³

³ Krupnik prominently teaches that it is important that the fibers retain the oil on their outer surfaces from the shaving process, and that, if the oil is not retained, oil can be added directly to the mass of loose fibers after the shaving process. (Column 3, lines 8-15.) It is well known in the art that the presence of oil or other organic material on a burner membrane can cause early rupture of the membrane due to carbon precipitation. Carbon atoms from the burned organic material enter into the molecular structure of the alloy, and locally change the alloy balance. Usually, the carbon precipitation makes the alloy less resistant to oxidation under higher temperatures. Thus, one of ordinary skill in the art seeking a burner membrane would not seek to combine Krupnik with the other references. (It is noted that the presence of organic material is difficult if not impossible to eliminate in the art, and the presence of some organic material in or on the burner membrane is expected. Applicants simply note that one of ordinary skill in the art would not find motivation use the teachings

That is, the ordinary artisan would have been discouraged from utilizing the oil laced fibers of Krupnik in the burner membrane web of EP '146. The PTO asserts that because it is only utilizing a portion of the teachings of Krupnik to formulate the Obviousness rejections, the fact that Krupnik teaches fibers with an oil coating is irrelevant with respect to MPEP § 2144.05(III). Applicants again point out that MPEP § 2144.05(III), entitled *Rebuttal Of Prima Facie Case Of Obviousness*, states that a “*prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention.” Applicants submit that because one part of Krupnik teaches away from the present invention, this meets the definition of “any material respect,” and thus any *prima facie* case of obviousness is hereby rebutted.

Applicants remind the PTO that a reference is used for all that it teaches, and in this instance, Krupnik teaches only embodiments that are lubricated with oil. This teaching cannot be ignored by the PTO, as this teaching would have discouraged the ordinary artisan from looking to Krupnik to modify existing burner membranes.

In sum, to the extent that a *prima facie* case of obvious has been established (which it has not), that case of obviousness is hereby rebutted, as both EP '863 and Krupnik teach away from the present invention in at least two material respects.

* * * * *

MPEP § 2143.01, entitled *Suggestion or Motivation to Modify the References*, states that the “prior art *must* suggest the desirability of the claimed invention.” (Emphasis added; citations omitted) It further states that obviousness

can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. ‘The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a

of Krupnik in combination with the other references due to the importance that Krupnik places on oil retention.) Again, to the extent that a *prima facie* case of obviousness has been made, that case is hereby rebutted.

whole would have suggested to those of ordinary skill in the art.'

(Citations omitted.)

Notwithstanding the teachings EP '863 and Krupnik that teach away from the invention as claimed (detailed above), the ordinary artisan would not have been motivated to combine even the teachings of EP '863 related to a non-sintered web with EP '146 and Krupnik, as is alleged in the Office Action.

The Office Action asserts that because EP '863 teaches non-sintered webs, the teachings of Krupnik are relevant to EP '863. That is not enough to satisfy the first requirement of MPEP § 2143 so as to establish a *prima facie* case of obviousness. If such was the case, the first requirement of MPEP § 2143 would automatically be met upon identification of various elements taught by different references that simply happen to be in the same field of endeavor. This has not and has never been the standard for motivation to combine. Instead, it is merely a prerequisite that art be analogous in formulating an obviousness rejection (barring an explicit teaching to look outside a given art field). It is merely a hurdle that must be overcome to proceed in formulating an obviousness rejection. It is not the end of the analysis of whether motivation to combine is present, but is, instead, the beginning of the analysis.

Still further, even if the recitation regarding the sequence of needling and compression is totally ignored, and even if the fact that EP '863 does not teach a non-sintered web for a burner membrane is totally ignored (both of which appear to be the case based on the rejections at hand), the ordinary artisan would still not have sought to needle the non-sintered web of EP '863, as he/she would have recognized that needling would skew the porosity of the webs (as detailed above), and thus the ordinary artisan seeking to obtain a web with a porosity as claimed would have been discouraged from modifying a web of known porosity that falls within the recited range.

* * * * *

Because the skilled artisan would have viewed as fact, based on the prior art (to which he is assumed to be completely aware under the law) that the porosities of EP '146 (78% to 88%) could not be achieved without sintering, the skilled artisan would not have attempted to combine the teachings of EP '146 with the non-sintering teachings of EP '863. The Office Action points out that "EP '146 is not relied on for the teachings of porosity, etc." However, EP '146 is relied on in view of the allegation that it teaches "particular types of fibers which are useful in forming non-woven metal fiber webs which can be used as burner membranes." These burner membranes have specific porosities, and the Office Action, by pointing out that EP '146 teaches porosities that fall within the claimed ranges, insinuates that this makes it obvious to combine EP '146 with the other references. Thus, to the extent that the PTO continues to place on the record the recited porosities of EP '146, thereby insinuating obviousness to combine, Applicants will continue to point out how EP '146 teaches away from the present invention in that the porosities of EP '146 cited in the Office Action are not achieved without sintering.

Lack of a Reasonable Expectation of Success

MPEP § 2143.02 permits references to be modified or combined to reject a claim as obvious only if there is a reasonable expectation of success. Applicants previously argued that because EP '863 limits its teachings to utilizing a sintered web for a burner membrane, the ordinary artisan would not have had reason to believe that the non-sintered web taught therein would also be usable for burner membranes. The Office Action responded that EP '863 teaches both sintered and non-sintered membranes. Applicants agree, but note that EP '863 only teaches that the non-sintered membranes are for use in a filter, as detailed above. EP '863 does not teach the use of non-sintered membranes in a burner membrane. Thus, one of ordinary skill in the art would not see the combination of the references as producing a successful burner membrane. Because of this, the second criteria of MPEP § 2143 has not been met in the Office Action, and a *prima facie* case of obviousness has therefore not been established.

Request for Rejoinder of Withdrawn Claims

Claims 9-11, 21-32, 34, 36, 38, 41-46 stand withdrawn. Applicants have cancelled claims 10-11, 32 and 36, and submit that the remaining claims are *method claims drawn to a method of making an apparatus along the lines of the considered claims*. Pursuant to MPEP § 821.04 and *In re Ochiai*, 71 F.3d 1565 (Fed. Cir. 1995), it is respectfully requested that these claims be rejoined and considered, since MPEP § 821.04 states that “when a product claim is found allowable, applicant may present claims directed to the process of making and/or using the patentable product.”

In view of the above, Applicants note that of the withdrawn claims that remain pending, claims 21, 27, 33, 34 and 41-46 ultimately depend from claim 13. Applicants respectfully request that these claims be rejoined and allowed at least due to their dependency from claim 13, a claim that is allowable.

As to the remaining claims, Applicants submit that these claims are allowable for at least the reasons that make the claims under consideration allowable. Applicants respectfully submit that no significant burden is placed on the PTO by rejoining and examining all the withdrawn claims. Indeed, many of the withdrawn claims explicitly recite recitations consistent with the above arguments. (For example, claim 22 affirmatively recites that the membrane is not sintered.)

Prior Arguments

In the interests of brevity, Applicants have not repeated all of their prior arguments relating to the patentability of the present claims. Applicants hereby incorporate those prior arguments herein by reference in their entirety.

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

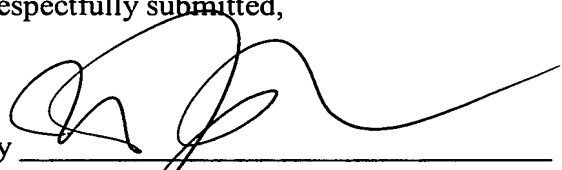
Examiner Cole is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date

Oct 17, 2006

By



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APPENDIX A

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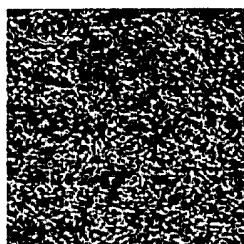
Bekipor® sintered metal fibre media

Bekipor® Porous Media : 20 years of excellence

Bekipor® porous medium is a non-woven, highly porous fibre matrix made of sintered metal fibres.

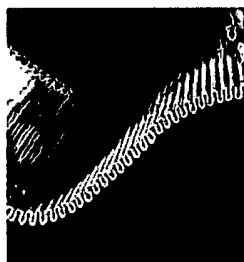
Bekipor® media have already a long tradition in highly demanding applications where extremely high porosity, high efficiency and a long on-stream life time are to be combined with excellent cleaning and corrosion & temperature resistance.

Bekipor® WB



Bekipor® WB is a composition of metal fibres, uniformly laid to form a three-dimensional non-woven structure.

Bekipor® ST



Bekipor® ST is a pleatable and weldable stainless steel fibre matrix, produced by the sintering of Bekipor® WB. This extremely porous fibre matrix is made in a uniform or graded pore structure, and can be a single or multiple layer membrane.

Bekipor® ST can be used in both liquid and gas filtration applications, for a wide range of filtration levels (from 1 to 80 micron)



The standard alloy is 316L (upon request specialty alloys are available for severe temperatures and corrosive environments).

Bekipor is also available with woven wire mesh, which is sintered to either one or both sides of the panel. Adding wire meshes increases the strength, protects the fibres and allows for cross drainage between the medium and a perforated core structure.

Last reviewed on 27-jan-2004

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